



## **Service Manual**

●SPECIFICATIONS .....	1
●PARTS .....	2
●CABINET PARTS LOCATION .....	5
●ADJUSTMENT .....	6
●BLOCK DIAGRAM .....	9
●SCHEMATIC DIAGRAM OF CPU UNIT .....	10
●CPU PC BOARD .....	11
●SCHEMATIC DIAGRAM OF VCO UNIT .....	13
●VCO PC BOARD .....	14
●SCHEMATIC DIAGRAM OF RF UNIT .....	15
●RF PC BOARD .....	16
●SCHEMATIC DIAGRAM OF IF UNIT .....	18
●IF PC BOARD .....	19

**ALINCO ELECTRONICS INC.**

## ■ SPECIFICATIONS

### ■ General

Frequency Range.....	DJ-162TD 144.00 — 148.00MHz
	DJ-162ED 144.00 — 146.00MHz
Emission Type .....	16F3
Antenna Impedance.....	50 OHMS
Operating Voltage.....	Rated 7.2V
Operating Current .....	High (2W) : 1A Low (0.2W): 500mA
Dimensions.....	142(H) x 57(W) x 32(D)mm
Weight .....	Approx. 350g

### ■ Receiver

Type.....	Superheterodyne, Double Conversion 1st IF: 55.05MHz 2nd IF: 455kHz
Sensitivity .....	12dB SINAD less than $-15\text{dB}\mu$
Selectivity.....	More than $\pm 7.5\text{kHz}$ at $-6\text{dB}$ Less than $\pm 15\text{kHz}$ at $-60\text{dB}$
IF .....	1st IF: 55.05MHz 2nd IF: 455kHz
Audio Output.....	More than 250mW (10% THD), 8 ohms

### ■ Transmitter

Output Power .....	See table
Modulation.....	Variable reactance FM
Maximum Deviation.....	$\pm 5\text{kHz}$
Harmonic Suppression .....	-60dB
Microphone .....	Built-in electret condenser

RF Power Output Table		
	Hi	Lo
with Battery Pack EBP-10NA (7.2V)	2W	Approx. $\times 0.2\text{W}$
with Battery Pack EBP-12NA (12V)	5W	Approx. $\times 0.5\text{W}$
with Dry Cell Battery Pack (9V)	3W	Approx. $\times 0.3\text{W}$

Specifications subject to change without notice.

## PARTS LIST

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
<b>CPU Unit</b>								
IC1	XA0138	IC, $\mu$ PD75116GF-690-3BE	R56	RK3102	Chip R, MCR03 20k $\Omega$ (T only)	R121	RK3062	Chip R, MCR03 100k $\Omega$
IC2	XA0107	IC, MT8880AP	R57	RK3102	Chip R, MCR03 20k $\Omega$ (T only)	R122	RK3050	Chip R, MCR03 10k $\Omega$
IC3	XA0106	S-8054HN-TI	R57	RK3038	Chip R, MCR03 1k $\Omega$ (E only)	R123	RK3046	Chip R, MCR03 4.7k $\Omega$
Q1	XT0038	Transistor, 2SA1037KT146R	R58	RK3034	Chip R, MCR03 470 $\Omega$	R124	RK3050	Chip R, MCR03 10k $\Omega$
Q2	XT0077	Transistor, 2SC3326ATE85L	R59	RK3034	Chip R, MCR03 470 $\Omega$	R125	RK0107	Chip R, MCR10 0 $\Omega$ (T only)
Q3	XT0038	Transistor, 2SA1037KT146R	R60	RK3050	Chip R, MCR03 10k $\Omega$ (T only)	C112	CU3052	Chip C, CM105W5R103K
Q4	XT0077	Transistor, 2SC3326ATE85L	R60	RK3001	Chip R, MCR03 0 $\Omega$ (E only)	C113	CU3052	Chip C, CM105W5R103K
D1	XD0120	Diode MA704WKTX	R61	RK3050	Chip R, MCR03 10k $\Omega$ (T only)	C114	CU3035	Chip C, CM105W5R102K
D2	XD0121	Diode RLZ9.1CTE-11	R61	RK3001	Chip R, MCR03 0 $\Omega$ (E only)	C115	CU3052	Chip C, CM105W5R103K
FAR1	XB0001	FAR-C4CA-0358000K01	R62	RK3050	Chip R, MCR03 10k $\Omega$ (T only)	C116	CU3019	Chip C, CM105CH470K
FAR2	XB0001	FAR-C4CA-0358000K01	R62	RK3102	Chip R, MCR03 20k $\Omega$ (T only)	C117	CU3003	Chip C, CM105CH020C
CN1	UE0099	Connector 52103-1317	R63	RK3058	Chip R, MCR03 47k $\Omega$	C118	CU3035	Chip C, CM105W5R102K
CN2	UE0101	Connector 52030-2810	R64	RK3034	Chip R, MCR03 470 $\Omega$	C119	CU3035	Chip C, CM105W5R102K
CN3	UE0102	BasewithPost 9P2mm	R69	RK3058	Chip R, MCR03 47k $\Omega$	C121	CU3052	Chip C, CM105W5R103K
L2	QC0016	Chip L, MLF3216A2R2M	R70	RK3034	Chip R, MCR03 470 $\Omega$	C123	CU3035	Chip C, CM105W5R102K
L3	QC0016	Chip L, MLF3216A2R2M	R71	RK3038	Chip R, MCR03 1k $\Omega$	C124	CU8003	Chip C, C2012Y1E104Z
L4	QC0014	ChorkCoil LAL02"NA100K	R72	RK3058	Chip R, MCR03 47k $\Omega$	C126	CS0063	ChipTantal C, TMCIV104TR
R1	RK3058	Chip R, MCR03 47k $\Omega$	R73	RK3058	Chip R, MCR03 47k $\Omega$	C127	CS0058	ChipTantal C, TMC0J685TR
R2	RK3038	Chip R, MCR03 1k $\Omega$	R74	RK3034	Chip R, MCR03 470 $\Omega$			
R3	RK3052	Chip R, MCR03 15k $\Omega$	R75	RK3058	Chip R, MCR03 47k $\Omega$			
R4	RK3058	Chip R, MCR03 47k $\Omega$	R76	RK1107	Chip R, MCR18 0 $\Omega$			
R5	RK3026	Chip R, MCR03 100 $\Omega$	R77	RK3062	Chip R, MCR03 100k $\Omega$			
R6	RK3050	Chip R, MCR03 10k $\Omega$	C1	CU3035	Chip C, CM105W5R102K			
R7	RK3046	Chip R, MCR03 4.7k $\Omega$	C2	CU3035	Chip C, CM105W5R102K			
R8	RK3038	Chip R, MCR03 1k $\Omega$	C3	CS0050	Chip Tantal C, TMCI1A475TR			
R9	RK3056	Chip R, MCR03 33k $\Omega$	C4	CS0053	Chip Tantal C, TMCOJ476TR			
R10	RK3046	Chip R, MCR03 4.7k $\Omega$	C5	CU3031	Chip C, CM105W5R471K			
R11	RK3046	Chip R, MCR03 4.7k $\Omega$	C6	CU3052	Chip C, CM105W5R103K			
R12	RK3038	Chip R, MCR03 1k $\Omega$	C7	CU3035	Chip C, CM105W5R102K			
R13	RK3026	Chip R, MCR03 100 $\Omega$ (T only)	C8	CS0049	Chip Tantal C, TMCI1C105TR			
R13	RK3038	Chip R, MCR03 1k $\Omega$ (E only)	C9	CU3031	Chip C, CM105W5R471K			
R14	RK3038	Chip R, MCR03 1k $\Omega$	C10	CU3056	Chip C, CM105Y5V473Z (T only)			
R15	RK3074	Chip R, MCR03 1M $\Omega$	C10	CU2012	Chip C, C2012B1H103K (E only)			
R16	RK3065	Chip R, MCR03 180k $\Omega$	C11	CU3056	Chip C, CM105Y5V473Z (T only)			
R17	RK3056	Chip R, MCR03 33k $\Omega$	C11	CU2012	Chip C, C2012B1H103K (E only)			
R18	RK3052	Chip R, MCR03 15k $\Omega$	C12	CU3052	Chip C, CM105W5R103K			
R19	RK3049	Chip R, MCR03 8.2k $\Omega$ (E only)	C13	CU8003	Chip C, C2012Y1E104Z			
R20	RK3050	Chip R, MCR03 10k $\Omega$ (T only)	C14	CU8003	Chip C, C2012Y1E104Z			
R21	RK3065	Chip R, MCR03 180k $\Omega$	C15	CU8003	Chip C, C2012Y1E104Z			
R22	RK3056	Chip R, MCR03 33k $\Omega$	C16	CU8003	Chip C, C2012Y1E104Z			
R23	RK3052	Chip R, MCR03 15k $\Omega$	C17	CU3035	Chip C, CM105W5R102K			
R24	RK3049	Chip R, MCR03 8.2k $\Omega$ (E only)	C18	CU3023	Chip C, CM105CH101K			
R25	RK3050	Chip R, MCR03 10k $\Omega$	C19	CU3054	Chip C, CM105W5R223K			
R26	RK3050	Chip R, MCR03 10k $\Omega$	C20	CU3035	Chip C, CM105W5R102K			
R27	RK3038	Chip R, MCR03 1k $\Omega$	C21	CU3052	Chip C, CM105W5R103K			
R28	RK3062	Chip R, MCR03 100k $\Omega$	C22	CU3031	Chip C, CM105W5R471K			
R29	RK3059	Chip R, MCR03 56k $\Omega$	C24	CE0056	Electrolytic Condenser, 100SW			
R30	RK3066	Chip R, MCR03 220k $\Omega$	C30	CU3056	Chip C, CM105Y5V473Z (E only)			
R31	RK3018	Chip R, MCR03 22 $\Omega$	J1	UJ0016	Jack, HSJ1423-01-050			
R32	RK3050	Chip R, MCR03 10k $\Omega$	EL0010	EL0010	LCD Unit, LU3X-188A			
R33	RK3058	Chip R, MCR03 47k $\Omega$	UP0170	UP0170	CPU Board			
R34	RK3046	Chip R, MCR03 4.7k $\Omega$	YZ0061	YZ0061	UL Tape, 10mm × 1mm			
R35	RK3058	Chip R, MCR03 47k $\Omega$	TT1001	TT1001	Elastic Tube, Ø 0.7 × 1mm			
R36	RK3058	Chip R, MCR03 47k $\Omega$						
R37	RK3058	Chip R, MCR03 47k $\Omega$						
R38	RK3034	Chip R, MCR03 470 $\Omega$						
R39	RK3034	Chip R, MCR03 470 $\Omega$						
R40	RK3038	Chip R, MCR03 1k $\Omega$						
R41	RK3038	Chip R, MCR03 1k $\Omega$						
R42	RK3034	Chip R, MCR03 470 $\Omega$						
R43	RK3034	Chip R, MCR03 470 $\Omega$						
R44	RK3034	Chip R, MCR03 470 $\Omega$						
R45	RK3034	Chip R, MCR03 470 $\Omega$						
R46	RK3038	Chip R, MCR03 1k $\Omega$						
R47	RK3038	Chip R, MCR03 1k $\Omega$						
R48	RK3038	Chip R, MCR03 1k $\Omega$						
R49	RK3038	Chip R, MCR03 1k $\Omega$						
R50	RK3038	Chip R, MCR03 1k $\Omega$						
R51	RK3038	Chip R, MCR03 1k $\Omega$						
R52	RK3038	Chip R, MCR03 1k $\Omega$						
R53	RK3038	Chip R, MCR03 1k $\Omega$						
R54	RK3102	Chip R, MCR03 20k $\Omega$ (T only)						
R55	RK3102	Chip R, MCR03 20k $\Omega$ (T only)						
<b>VCO Unit</b>								
Q104	XT0030	Transistor, 2SC3356-T1	Q104	XT0030	Transistor, 2SC3356-T1	Q104	XT0030	Transistor, 2SC3356-T1
Q106	XT0030	Transistor, 2SC3356-T1	Q106	XT0030	Transistor, 2SC3356-T1	Q106	XT0030	Transistor, 2SC3356-T1
Q107	XT0090	Transistor, 2SC2411KT146Q	Q107	XT0090	Transistor, 2SC2411KT146Q	Q107	XT0090	Transistor, 2SC2411KT146Q
D102	XD0077	Varicap, 1SV161-TPH2	D102	XD0077	Varicap, 1SV161-TPH2	D102	XD0077	Varicap, 1SV161-TPH2
D103	XD0077	Varicap, 1SV161-TPH2	D103	XD0077	Varicap, 1SV161-TPH2	D103	XD0077	Varicap, 1SV161-TPH2
L102	QK0010	ChipL, MLF3216E100M	L102	QK0010	ChipL, MLF3216E100M	L102	QK0010	ChipL, MLF3216E100M
L103	QK0003	ChipL, MLF3216E1ROM	L103	QK0003	ChipL, MLF3216E1ROM	L103	QK0003	ChipL, MLF3216E1ROM
L104	QK0010	ChipL, MLF3216E100M	L104	QK0010	ChipL, MLF3216E100M	L104	QK0010	ChipL, MLF3216E100M
L105	QK0010	ChipL, MLF3216E100M	L105	QK0010	ChipL, MLF3216E100M	L105	QK0010	ChipL, MLF3216E100M
L106	QA0063	Coil, QA0063	L106	QA0063	Coil, QA0063	L106	QA0063	Coil, QA0063
L107	QK0081	Air Core Coil, 0.4-1.5×4T	L107	QK0081	Air Core Coil, 0.4-1.5×4T	L107	QK0081	Air Core Coil, 0.4-1.5×4T
UT0019	TS0032A	PC Board Terminal, CK-1-2	UT0019	TS0032A	PC Board Terminal, CK-1-2	UT0019	TS0032A	PC Board Terminal, CK-1-2
R109	RK3030	Chip R, MCR03 220 $\Omega$	R109	RK3030	Chip R, MCR03 220 $\Omega$	R109	RK3030	Chip R, MCR03 220 $\Omega$
R110	RK3026	Chip R, MCR03 100 $\Omega$	R110	RK3026	Chip R, MCR03 100 $\Omega$	R110	RK3026	Chip R, MCR03 100 $\Omega$
R111	RK3022	Chip R, MCR03 47 $\Omega$	R111	RK3022	Chip R, MCR03 47 $\Omega$	R111	RK3022	Chip R, MCR03 47 $\Omega$
R112	RK3046	Chip R, MCR03 4.7k $\Omega$	R112	RK3046	Chip R, MCR03 4.7k $\Omega$	R112	RK3046	Chip R, MCR03 4.7k $\Omega$
R113	RK3054	Chip R, MCR03 22k $\Omega$	R113	RK3054	Chip R, MCR03 22k $\Omega$	R113	RK3054	Chip R, MCR03 22k $\Omega$
R114	RK3038	Chip R, MCR03 1k $\Omega$	R114	RK3038	Chip R, MCR03 1k $\Omega$	R114	RK3038	Chip R, MCR03 1k $\Omega$
R115	RK3026	Chip R, MCR03 100 $\Omega$	R115	RK3026	Chip R, MCR03 100 $\Omega$	R115	RK3026	Chip R, MCR03 100 $\Omega$
R116	RK3062	Chip R, MCR03 100k $\Omega$	R116	RK3062	Chip R, MCR03 100k $\Omega$	R116	RK3062	Chip R, MCR03 100k $\Omega$
R117	RK3038	Chip R, MCR03 1k $\Omega$	R117	RK3038	Chip R, MCR03 1k $\Omega$	R117	RK3038	Chip R, MCR03 1k $\Omega$
R302	RK3046	Chip R, MCR03 4.7k $\Omega$	R302	RK3046	Chip R, MCR03 4.7k $\Omega$	R302	RK3046	Chip R, MCR03 4.7k $\Omega$
R303	RK3046	Chip R, MCR03 4.7k $\Omega$	R303	RK3046	Chip R, MCR03 4.7k $\Omega$	R303	RK3046	Chip R, MCR03 4.7k $\Omega$
R304	RK3074	Chip R, MCR03 1M $\Omega$	R304	RK3074	Chip R, MCR03 1M $\Omega$	R304	RK3074	Chip R, MCR03 1M $\Omega$
R305	RK3062	Chip R, MCR03 100k $\Omega$	R305	RK3062	Chip R, MCR03 100k $\Omega$	R305	RK3062	Chip R, MCR03 100k $\Omega$
R306	RK3022	Chip R, MCR03 47 $\Omega$	R306	RK3022	Chip R, MCR03 47 $\Omega$	R306	RK3022	Chip R, MCR03 47 $\Omega$
R307	RK3026	Chip R, MCR03 100 $\Omega$	R307	RK3026	Chip R, MCR03 100 $\Omega$	R307	RK3026	Chip R, MCR03 100 $\Omega$
R308	RK3074	Chip R, MCR03 1M $\Omega$	R308	RK3074	Chip R, MCR03 1M $\Omega$	R308	RK3074	Chip R, MCR03 1M $\Omega$
R309	RK3074	Chip R, MCR03 1M $\Omega$	R309	RK3074	Chip R, MCR03 1M $\Omega$	R309	RK3074	Chip R, MCR03 1M $\Omega$

Ref. No.	Part Code	Part Name and Number
R310	RK3050	Chip R, MCR03 10kΩ
R311	RK3056	Chip R, MCR03 33kΩ
R312	RK3026	Chip R, MCR03 100Ω
R313	RK3026	Chip R, MCR03 100Ω
R314	RK3070	Chip R, MCR03 470kΩ
R315	RK3030	Chip R, MCR03 220Ω
R316	RK3038	Chip R, MCR03 1kΩ
R317	RK3038	Chip R, MCR03 1kΩ
R327	RK3038	Chip R, MCR03 1kΩ
R328	RK3038	Chip R, MCR03 1kΩ
R329	RK3064	Chip R, MCR03 150kΩ
R330	RK3026	Chip R, MCR03 100Ω
R331	RK3038	Chip R, MCR03 1kΩ
R332	RK0130	Chip R, MCR10 4.7Ω
R333	RK3034	Chip R, MCR03 470Ω
R334	RK3034	Chip R, MCR03 470Ω
R335	RK3022	Chip R, MCR03 47Ω
R336	RK3050	Chip R, MCR03 10kΩ
R337	RK3046	Chip R, MCR03 4.7kΩ
R338	RK3038	Chip R, MCR03 1kΩ
R341	RK3022	Chip R, MCR03 47Ω
R342	RK3026	Chip R, MCR03 100Ω
R343	RK3038	Chip R, MCR03 1kΩ
R344	RK3054	Chip R, MCR03 22kΩ
R345	RK3054	Chip R, MCR03 22kΩ
R346	RK3054	Chip R, MCR03 22kΩ
R347	RK3050	Chip R, MCR03 10kΩ
R348	RK3050	Chip R, MCR03 10kΩ
R349	RK3050	Chip R, MCR03 10kΩ
R350	RK3038	Chip R, MCR03 1kΩ
R351	RK3026	Chip R, MCR03 100Ω
R352	RK3025	Chip R, MCR03 82Ω
R353	RK3014	Chip R, MCR03 10Ω
R354	RK3054	Chip R, MCR03 22kΩ
R355	RK3026	Chip R, MCR03 100Ω
R358	RK3026	Chip R, MCR03 100Ω
R359	RK3030	Chip R, MCR03 220Ω
R360	RK3038	Chip R, MCR03 1kΩ
R361	RK3026	Chip R, MCR03 100Ω
R362	RK3042	Chip R, MCR03 2.2kΩ
R363	RK3074	Chip R, MCR03 1MΩ
R365	RK3001	Chip R, MCR03 0Ω
C301	CU3004	Chip C, CM105CH030C
C302	CU3005	Chip C, CM105CH040C
C304	CU3035	Chip C, CM105W5R102K
C305	CU3015	Chip C, CM105CH220K
C306	CU3019	Chip C, CM105CH470K
C308	CU3016	Chip C, CM105CH270K
C310	CU3035	Chip C, CM105W5R102K
C311	CU3035	Chip C, CM105W5R102K
C312	CU3052	Chip C, CM105W5R103K
C313	CU3016	Chip C, CM105CH270K
C314	CU3021	Chip C, CM105CH680K
C315	CU3052	Chip C, CM105W5R103K
C316	CU3035	Chip C, CM105W5R102K
C317	CU3052	Chip C, CM105W5R103K
C318	CU3052	Chip C, CM105W5R103K
C319	CU3035	Chip C, CM105W5R102K
C320	CU3021	Chip C, CM105CH680K
C321	CU3023	Chip C, CM105CH101K
C322	CU3052	Chip C, CM105W5R103K
C323	CU3021	Chip C, CM105CH680K
C324	CU3018	Chip C, CM105CH390K
C325	CU3003	Chip C, CM105CH020C
C326	CU3035	Chip C, CM105W5R102K
C328	CU3052	Chip C, CM105W5R103K
C329	CU3006	Chip C, CM105CH050C
C330	CU3005	Chip C, CM105CH040C
C331	CU3035	Chip C, CM105W5R102K
C332	CU3052	Chip C, CM105W5R103K
C333	CU3052	Chip C, CM105W5R103K
C348	CU3011	Chip C, CM105CH100K
C349	CU3035	Chip C, CM105W5R102K
C350	CU3011	Chip C, CM105CH100K
C351	CU3011	Chip C, CM105CH100K
C352	CU3035	Chip C, CM105W5R102K
C353	CS0050	Chip Tantal C, TMC1A475TR
C354	CS0068	Chip Tantal C, TMC1E475TR
C355	CU3052	Chip C, CM105W5R103K
C356	CU3035	Chip C, CM105W5R102K

Ref. No.	Part Code	Part Name and Number
C357	CU3052	Chip C, CM105W5R103K
C359	CU3023	Chip C, CM105CH101K
C360	CU3035	Chip C, CM105W5R102K
C362	CU3052	Chip C, CM105W5R103K
C363	CU3011	Chip C, CM105CH100K
C364	CU3035	Chip C, CM105W5R102K
C365	CU3052	Chip C, CM105W5R103K
C366	CU3005	Chip C, CM105CH040C
C367	CU3035	Chip C, CM105W5R102K
C368	CU3052	Chip C, CM105W5R103K
C369	CU3015	Chip C, CM105CH220K
C370	CU3052	Chip C, CM105W5R103K
C371	CU3011	Chip C, CM105CH100K
C372	CU3035	Chip C, CM105W5R102K
C373	CU3035	Chip C, CM105W5R102K
C374	CU3035	Chip C, CM105W5R102K
C378	CU3035	Chip C, CM105W5R102K
C380	CU3023	Chip C, CM105CH101K
C381	CU3016	Chip C, CM105CH270K
C382	CU3016	Chip C, CM105CH270K
C383	CU3052	Chip C, CM105W5R103K
C384	CS0057	Chip Tantal C, TMC0J225TR
C385	CU3052	Chip C, CM105W5R103K
C386	CS0209	Chip Tantal C, TMC0M0J106TR
C387	CS0057	Chip Tantal C, TMC0J225TR
C388	CU3035	Chip C, CM105W5R102K
C389	CU3011	Chip C, CM105CH100K
C390	CU3056	Chip C, CM105Y5V473Z
C391	CS0209	Chip Tantal C, TMC0M0J106TR
C392	CU3035	Chip C, CM105W5R102K
C394	CU3035	Chip C, CM105W5R102K
C397	CU3015	Chip C, CM105CH220K
C398	CU3052	Chip C, CM105W5R103K
C401	CU3052	Chip C, CM105W5R103K
C402	CU3052	Chip C, CM105W5R103K
C404	CU3035	Chip C, CM105W5R102K
X'tal	XQ0022	X'tal, 12.8MHzUM-i
XFI2	XF0003	X'tal Filter, 55.05MHz (55M15A)
	UE0029A	Antenna Connector, (with Connector Nut)
CN301	UE0100	Connector, 52030-1610
CN302	UE0039	Housing, TZL-P02P-C1
SW301	US0015	Slide Switch, HSW0880-01-210
	TZ0021	Insulating Paper
	ED6005	LTHM BATTERY

### IF Unit

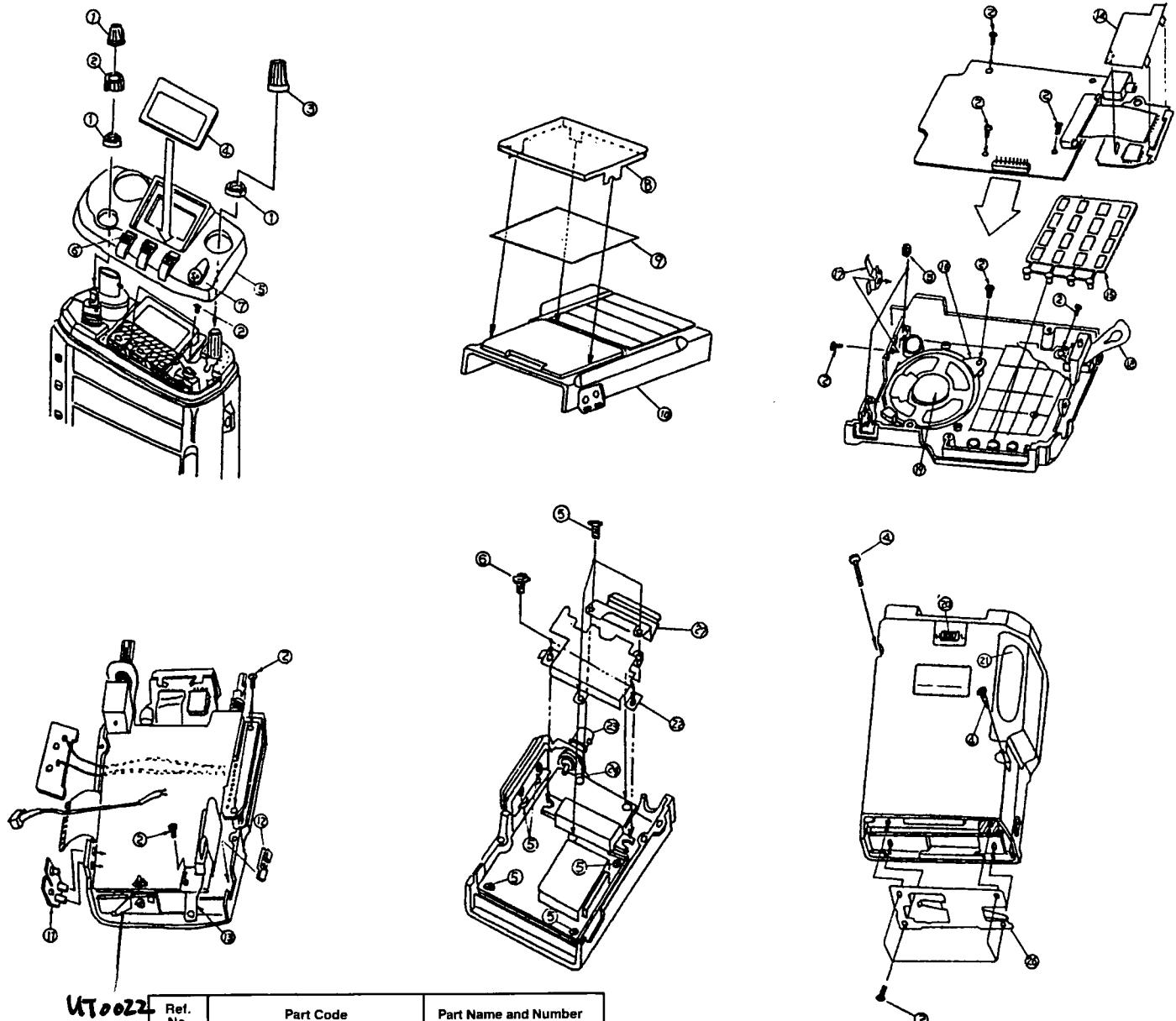
IC201	XA0070	IC, MC3361D
IC202	XA0061	IC, NJM386M
IC203	XA0068	IC, M5218FP
IC204	XA0104	IC, M5236ML
D201	XD0108	Diode, MA704
D202	XD0118	Diode, MA716
D203	XD0119	Diode, MA718
D204	XD0108	Diode, MA704
D205	XD0040	Diode, DAN202K
D206	XD0040	Diode, DAN202K
D207	XD0104	Zener Diode, 0.02Z6.2Y
D208	XD0091	Diode, IMN10
D209	XD0041	Diode, DAP202K
D210	XD0107	Diode, G3B
D211	XD0040	Diode, DAN202K
D212	XD0108	Diode, MA704
Q201	XT0037	Transistor, 2SC2412K R
Q202	XT0081	Transistor, 2SC2714 Y
Q203	XT0037	Transistor, 2SC2412K R
Q204	XT0036	Transistor, 2SC2413K P
Q205	XT0036	Transistor, 2SC2413K P
Q206	XT0037	Transistor, 2SC2412K R
Q207	XT0037	Transistor, 2SC2412K R
Q208	XU0021	Transistor, FMC3
Q209	XT0037	Transistor, 2SC2412K R
Q210	XT0088	Transistor, 2SA1213 Y
Q211	XT0037	Transistor, 2SC2412K R
Q212	XU0026	Transistor, FMG2
Q213	XT0088	Transistor, 2SA1213 Y
Q214	XU0027	Transistor, FMA7
Q215	XU0026	Transistor, FMG2

Ref. No.	Part Code	Part Name and Number
Q216	XU0027	Transistor, FMA7
Q217	XU0026	Transistor, FMG2
Q218	XU0027	Transistor, FMA7
Q219	XU0026	Transistor, FMG2
Q220	XU0026	Transistor, FMG2
Q221	XT0088	Transistor, 2SA1213 Y
Q222	XT0037	Transistor, 2SC2412K R
X'tal	XQ0039	X'tal, 15.54.595MHz (UM-1)
FIL	XC0004	455KHz Filter, CFUM455E
VR201	RV0014	VR, RK09722115R1211-10KB
VR202	RH0061	VR, MVR32HXBRN472
VR203	RH0060	VR, MVR32HXBRN473
VR204	RH0060	VR, MVR32HXBRN473
VR205	RH0060	VR, MVR32HXBRN473
ENC	UR0004	Rotary Encoder, SRBM1 L20-18
L201	QC0132	Chip L, NL322522T-R68J-3
L202	QA0044	Detection Coil, QA0044
J201	UJ0015	DC Jack, HEC1781-01-020
J202	UJ0017	MIC Jack, HSJ2079-01-010
TH201	XS0007	Thermistor, TD5-C230D
R201	RK3056	Chip R, MCR03EZHZJ333
R202	RK3062	Chip R, MCR03EZHZJ104
R203	RK3038	Chip R, MCR03EZHZJ102
R204	RK3056	Chip R, MCR03EZHZJ333
R205	RK3058	Chip R, MCR03EZHZJ473
R206	RK3044	Chip R, MCR03EZHZJ332
R207	RK3050	Chip R, MCR03EZHZJ103
R208	RK3062	Chip R, MCR03EZHZJ104
R210	RK3042	Chip R, MCR03EZHZJ222
R211	RK3070	Chip R, MCR03EZHZJ474
R212	RK3042	Chip R, MCR03EZHZJ222
R213	RK3038	Chip R, MCR03EZHZJ102
R214	RK3054	Chip R, MCR03EZHZJ223
R215	RK3050	Chip R, MCR03EZHZJ103
R216	RK3022	Chip R, MCR03EZHZJ470
R217	RK3050	Chip R, MCR03EZHZJ103
R218	RK3071	Chip R, MCR03EZHZJ564
R219	RK3054	Chip R, MCR03EZHZJ223
R220	RK3022	Chip R, MCR03EZHZJ470
R221	RK3042	Chip R, MCR03EZHZJ222
R222	RK3066	Chip R, MCR03EZHZJ224
R223	RK3042	Chip R, MCR03EZHZJ222
R224	RK3062	Chip R, MCR03EZHZJ104
R225	RK3054	Chip R, MCR03EZHZJ223
R226	RK3058	Chip R, MCR03EZHZJ473
R227	RK3062	Chip R, MCR03EZHZJ104
R228	RK3070	Chip R, MCR03EZHZJ474
R229	RK3046	Chip R, MCR03EZHZJ472
R230	RK3042	Chip R, MCR03EZHZJ222
R231	RK3058	Chip R, MCR03EZHZJ473
R232	RK3050	Chip R, MCR03EZHZJ103
R233	RK3070	Chip R, MCR03EZHZJ474
R234	RK3058	Chip R, MCR03EZHZJ473
R235	RK3050	Chip R, MCR03EZHZJ103
R236	RK3046	Chip R, MCR03EZHZJ472
R237	RK3067	Chip R, MCR03EZHZJ274
R238	RK3042	Chip R, MCR03EZHZJ222
R239	RK3058	Chip R, MCR03EZHZJ473
R240	RK3050	Chip R, MCR03EZHZJ103
R241	RK3032	Chip R, MCR03EZHZJ331
R242	RK3046	Chip R, MCR03EZHZJ472
R243	RK3028	Chip R, MCR03EZHZJ151
R244	RK3062	Chip R, MCR03EZHZJ104
R245	RK3050	Chip R, MCR03EZHZJ103
R246	RK3050	Chip R, MCR03EZHZJ103
R247	RK3050	Chip R, MCR03EZHZJ103
R248	RK3042	Chip R, MCR03EZHZJ222
R250	RK3046	Chip R, MCR03EZHZJ472
R251	RK3050	Chip R, MCR03EZHZJ103
R252	RK3050	Chip R, MCR03EZHZJ103
R253	RK3050	Chip R, MCR03EZHZJ103
R254	RK3066	Chip R, MCR03EZHZJ224
R255	RK3022	Chip R, MCR03EZHZJ470
R256	RK3062	Chip R, MCR03EZHZJ104

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
R257	RK3062	Chip R. MCR03EZHZJ104	C255	CU3023	Chip C. CM105CH101K50V			
R260	RK3059	Chip R. MCR03EZHZJ563	C257	CU3027	Chip C. CM105SSL221K50V			
R261	RK3066	Chip R. MCR03EZHZJ224	C258	CU3053	Chip C. CM105W5R102K50V			
R262	RK3050	Chip R. MCR03EZHZJ103	C259	CU3053	Chip C. CM105W5R102K50V			
R263	RK3065	Chip R. MCR03EZHZJ184	C260	CU3031	Chip C. CM105W5R471K50V			
R264	RK3067	Chip R. MCR03EZHZJ274	C261	CU3031	Chip C. CM105W5R471K50V			
R265	RK3058	Chip R. MCR03EZHZJ473	C262	CS0209	Chip TantalC.TMCMB0J106M			
R266	RK3050	Chip R. MCR03EZHZJ103	C263	CS0069	Chip TantalC.TMCSCA1V154M			
R267	RK3050	Chip R. MCR03EZHZJ103	C264	CS0209	Chip TantalC.TMCMB0J106M			
R268	RK3046	Chip R. MCR03EZHZJ472	C265	CU3043	Chip C. CM105W5R472K50V			
R269	RK3029	Chip R. MCR03EZHZJ181	C266	CU3019	Chip C. CM105CH470K50V			
R270	RK0105	Chip R. MCR10EZHZJ2R2E	C267	CU3052	Chip C. CM105W5R103K25V			
R271	RK3062	Chip R. MCR03EZHZJ104	C268	CE0307	Chip Electrolytic C.ECEVOJA470P			
R272	RK3058	Chip R. MCR03EZHZJ473	C269	CU3053	Chip C. CM105W5R102K50V			
R273	RK3038	Chip R. MCR03EZHZJ102	C270	CU3053	Chip C. CM105W5R102K50V			
R274	RK3034	Chip R. MCR03EZHZJ471	C271	CS0049	Chip TantalC.TMCSCA1C105M			
R275	RK3034	Chip R. MCR03EZHZJ471	C272	CU3053	Chip C. CM105W5R102K50V			
R276	RK0105	Chip R. MCR10EZHZJ2R2E	C273	CU3053	Chip C. CM105W5R102K50V			
R277	RK3050	Chip R. MCR03EZHZJ103	C274	CU3053	Chip C. CM105W5R102K50V			
R278	RK3014	Chip R. MCR03EZHZJ100	C275	CE0315	Chip Electrolytic C.ECEVICA470P			
R279	RK3029	Chip R. MCR03EZHZJ181	C276	CU3053	Chip C. CM105W5R102K50V			
R280	RK3054	Chip R. MCR03EZHZJ223	C277	CS0049	Chip TantalC.TMCSCA1C105M			
R289	RK1018	Chip R. MCR18EZHZJ101E	C278	CS0209	Chip TantalC.TMCMB0J106M			
R290	RK3066	Chip R. MCR03EZHZJ224	C279	CU3053	Chip C. CM105W5R102K50V			
R291	RK3044	Chip R. MCR03EZHZJ332	C280	CE0315	Chip Electrolytic C.ECEVICA470P			
R292	RK3050	Chip R. MCR03EZHZJ103	C281	CU3053	Chip C. CM105W5R102K50V			
R293	RK3070	Chip R. MCR03EZHZJ474	C282	CU3053	Chip C. CM105W5R102K50V			
			C283	CU3053	Chip C. CM105W5R102K50V			
C201	CS0057	Chip Tantal C.TMCSCA0J225M	C285	CU3052	Chip C. CM105W5R103K25V			
C202	CU3052	Chip C. CM105W5R103K25V	C286	CU3053	Chip C. CM105W5R102K50V			
C203	CU3052	Chip C. CM105W5R103K25V	C287	CU3053	Chip C. CM105W5R102K50V			
C204	CU3052	Chip C. CM105W5R103K25V	C288	CU3052	Chip C. CM105W5R103K25V			
C205	CU3052	Chip C. CM105W5R103K25V	C289	CU3052	Chip C. CM105W5R103K25V			
C206	CU8003	Chip C. CC2012JF1E104	C290	CU3053	Chip C. CM105W5R102K50V			
C207	CU8003	Chip C. CC2012JF1E104	C291	CS0235	Chip Tantal C.TMCSCA1V334M			
C208	CU8003	Chip C. CC2012JF1E104	C292	CU8003	Chip C. CC2012JF1E104			
C209	CU3052	Chip C. CM105W5R103K25V	C293	CU8003	Chip C. CC2012JF1E104			
C210	CU3017	Chip C. CM105CH330K50V	C294	CE0308	Chip Electrolytic C.ECEVOJA101P			
C211	CU3053	Chip C. CM105W5R102K50V	C295	CU3023	Chip C. CM105CH101K50V			
C212	CU3053	Chip C. CM105W5R102K50V	C296	CU3060	Chip C. CM105CH221K50V			
C213	CU3053	Chip C. CM105W5R102K50V	C297	CU8003	Chip C. CC2012JF1E104			
C214	CU3053	Chip C. CM105W5R102K50V	C298	CU3053	Chip C. CM105Y5V333Z25V			
C215	CU3052	Chip C. CM105W5R103K25V	C299	CU3053	Chip C. CM105Y5V333Z25V			
C216	CU3019	Chip C. CM105CH470K50V						
C217	CU3006	Chip C. CM105CH050K50V	CN201	UE0101	Conetor.52030-2810			
C218	CU3013	Chip C. CM105CH150K50V	CN202	UE0100	Conetor.52030-1610			
C219	CU3053	Chip C. CM105W5R102K50V	CN203	UE0098	Conetor.52207-1090			
C220	CU3019	Chip C. CM105CH470K50V						
C221	CS0059	Chip Tantal C.TMCSC0J226M						
C222	CU8003	Chip C. CC2012JF1E104						
C223	CU8003	Chip C. CC2012JF1E104						
C224	CU8003	Chip C. CC2012JF1E104						
C225	CU3053	Chip C. CM105W5R102K50V						
C226	CU3061	Chip C. CM105CH271K50V						
C227	CU8003	Chip C. CC2012JF1E104						
C228	CU3053	Chip C. CM105W5R102K50V						
C229	CU3052	Chip C. CM105W5R103K25V						
C230	CU3053	Chip C. CM105W5R102K50V						
C231	CU3053	Chip C. CM105W5R102K50V						
C232	CS0063	Chip Tantal C.TMCSCA1V104M						
C233	CU3039	Chip C. CM105W5R222K50V						
C234	CU3053	Chip C. CM105W5R102K50V						
C236	CS0050	Chip Tantal C.TMCSCB1A475M						
C237	CS0063	Chip Tantal C.TMCSCA1V104M						
C238	CU3054	Chip C. CM105W5R223K25V						
C239	CU3056	Chip C. CM105Y5V473Z25V						
C240	CU3056	Chip C. CM105Y5V473Z25V						
C241	CU3054	Chip C. CM105W5R223K25V						
C242	CU3052	Chip C. CM105W5R103K25V						
C243	CS0049	Chip Tantal C.TMCSCA1C105M						
C244	CE0308	Chip Electrolytic C.ECEVOJA101P						
C245	CU3054	Chip C. CM105W5R223K25V						
C246	CU3054	Chip C. CM105W5R223K25V						
C247	CU3031	Chip C. CM105W5R471K50V						
C248	CU3031	Chip C. CM105W5R471K50V						
C249	CU3031	Chip C. CM105W5R471K50V						
C250	CE0056	Electrolytic C.16MV100SW						
C251	CU3031	Chip C. CM105W5R471K50V						
C252	CU3031	Chip C. CM105W5R471K50V						
C253	CS0049	Chip TantalC.TMCSCA1C105M						
C254	CU3052	Chip C. CM105W5R103K25V						

UT0022 + 端子

## ■ CABINET PARTS LOCATION



UT0022

Ref. No.	Part Code	Part Name and Number
<b>Mechanical Parts</b>		
1	NK0019A	Volume Knob
2	NW0004A	Squelch Knob
3	NK0018A	Dial Knob
4	DP0040	LCD Panel
5	KU0078	Upper Panel
6	DD0007	U/D Knob
7	FG0048	EP Rubber
8	DV0003A	SP Metal Net
9	TG0007	Speaker Sheet
10	KM0058A	Front Case
11	FG0047	DC Rubber
12	NB0027	Release Knob
13	FM0036	IF Earth Board
14	N/A	N/A
15	FG0046B	Silicon Key
16	ST0020	Speaker Stabilizer
17	UT0022	Terminal(+)
18	FM0037	CPU Earth Board
19	ES0005	Speaker
20	NS0002	H/L Knob
21	DD0006	PTI Cover
22	TS0036	Modul Shielding Boad
23	UE0029A	Antenna Conector
24	FM0033	Antenna Eath Boad
25	KB0030	Rear Case
26	UT0021	Terminal(-)
27	FM0038	LCD Earth Board

<b>Screws</b>		
1	AN0012	Dial Nut
2	AF0013	M2×4
3	AN0004	M2 Nut
4	AP0003	Self Tapping M2×16
5	AF0014	M2. 6×3. 5
6	AB0001	M2. 6×6

## ■ ADJUSTMENT

### 1. Transmitting Unit [DJ-162TD]

Item	Adjustment Point	Adjustment Method	Spec
1. Frequency adjustment	TC304 (RF PCB)	Set the unit in the transmission mode at 146.03MHz and adjustment TC304. (Transceiver tester, counter)	146.03MHz±50Hz
2. TX Power adjustment	VR301 (RF PCB) (Hi Power) VR302 (RF PCB) (Lo Power)	Adjustment VR301 so that TX power becomes 3W at 146.03MHz. Adjustment VR302 so that TX power becomes 300mW at 146.03MHz.	3.0W±0.1W 300mW±50mW
3. Modulation degree adjustment	VR204 (IF PCB)	Input a signal of 1kHz/50mV into The Mic jack transmitting at 146.03MHz and adjust VR204 so that you obtain 4.7kHz/Dev in the transmission mode.	4.7kHz±0.1kHz
4. Subaudible tone	VR203 (IF PCB)	Adjust 88.5kHz by VR203 so that you obtain 800Hz/Dev.	800Hz±100Hz
5. DTMF	VR205 (IF PCB)	Push 1 in the transmission mode and adjust VR203 so that you obtain 3.1kHz/Dev.	3.1kHz±0.1kHz

### 2. Receiving Unit [DJ-162TD]

Item	Adjustment Point	Adjustment Method	Spec
1. VCO P/D Voltage adjustment	L106 (VCO)	Adjust L106 so that P/D voltage is 2.0V at 145.03MHz (DC Voltmeter) in the transmission mode.	2.0V
2. Detection Coil adjustment	L202 (IF PCB)	Input 1kHz, 3.5kHz/Dev. +66dB $\mu$ at 146.05MHz and adjust L202 so that detection power becomes maximum.	
3. VHF FRONT END adjustment	L306, L308, L309, TC305, L311, L312 (RF PCB)	At 146.03MHz and adjust L306, L308, L309, TC305, L311, and L312, so that 12dB SINAD sensitivity becomes maximum.	under -9dB $\mu$ (EMF)
4. S-meter adjustment	VR202 (IF PCB)	Input a signal of 10dB $\mu$ from transceiver tester at 146.03MHz Turn VR202 so that Full-bar begins to tight.	10dB $\mu$ ±1dB $\mu$ (EMF)

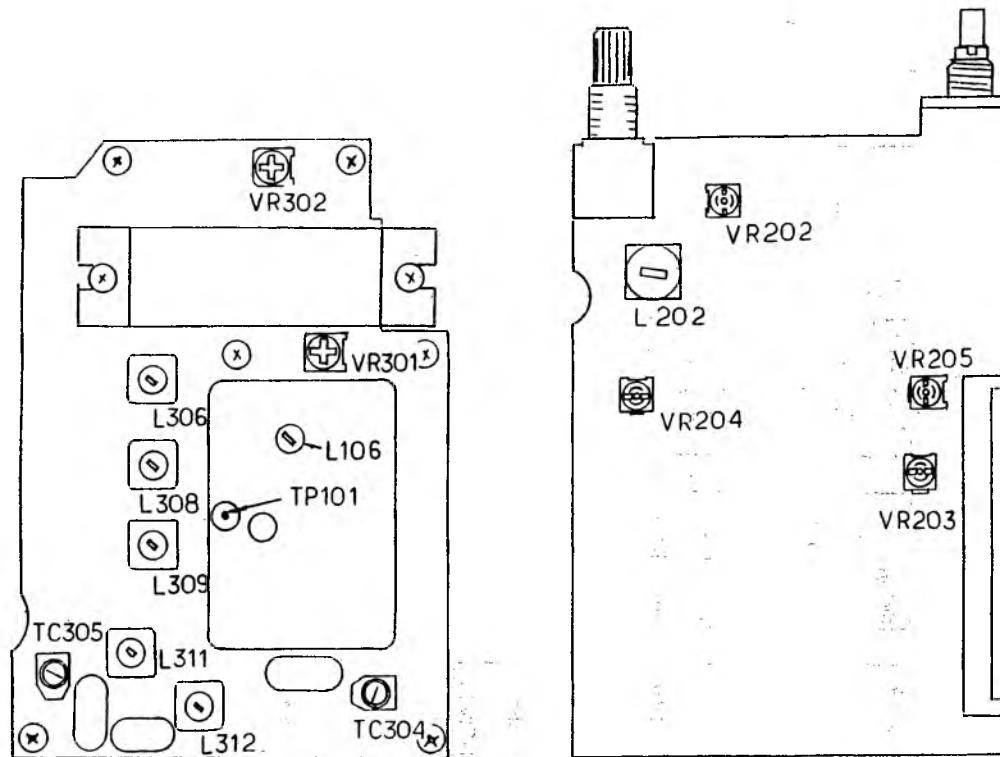
## 1. Transmitting Unit [DJ-162ED]

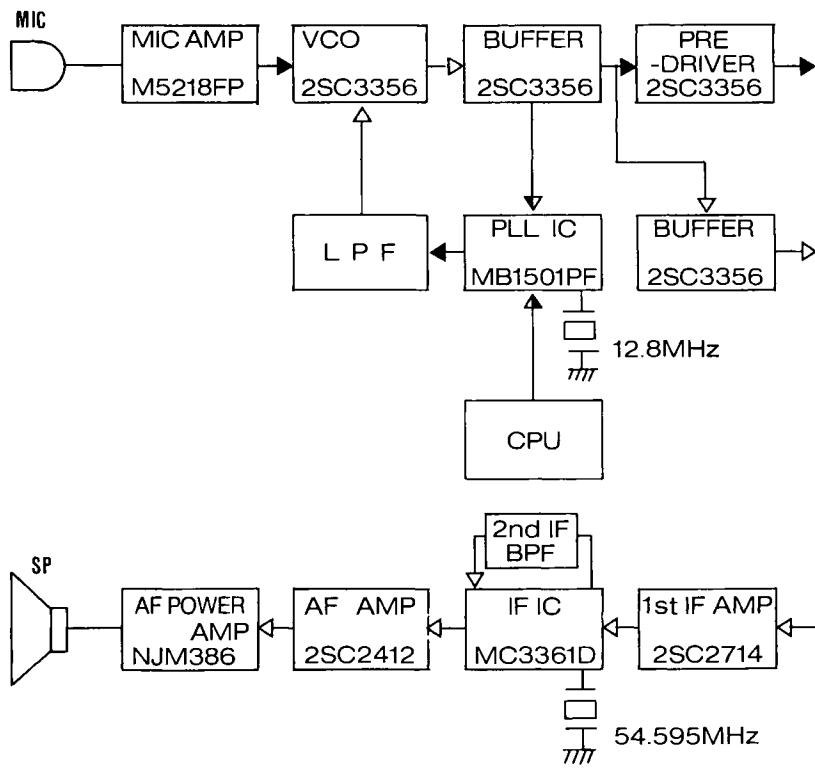
Item	Adjustment Point	Adjustment Method	Spec
1. Frequency adjustment	TC304 (RF PCB)	Set the unit in the transmission mode at 145.03MHz and adjustment TC304. (Transceiver tester, counter)	145.03MHz ± 50Hz
2. TX Power adjustment	VR301 (RF PCB) (Hi Power) VR302 (RF PCB) (Lo Power)	Adjustment VR301 so that TX power becomes 3W at 145.99MHz. Adjustment VR302 so that TX power becomes 300mW at 145.99MHz.	3.1W ± 0.1W 300mW ± 50mW
3. Modulation degree adjustment	VR204 (IF PCB)	Input a signal of 1kHz/50mV into The Mic jack transmitting at 145.03MHz and adjust VR204 so that you obtain 4.7kHz/Dev in the transmission mode.	4.7kHz ± 0.1kHz
4. Subaudible tone	VR203 (IF PCB)	Transmit at 145.03MHz and adjust VR203 to obtain a frequency moduration of 3.0kHz, making sure that tone burst 1750Hz within a range of 1750Hz ± 20Hz.	3.0kHz ± 0.5kHz
5. DTMF.	VR205 (IF PCB)	Push <u>1</u> in the transmission mode and adjust VR205 so that you obtain 3.1kHz/Dev.	3.1kHz ± 0.1kHz

## 2. Receiving Unit [DJ-162ED]

Item	Adjustment Point	Adjustment Method	Spec
1. VCO P/D Voltage adjustment	L106 (VCO)	Adjust L106 so that P/D Voltage is 2.0V at 145.03MHz (DC Voltmeter) in the transmission mode.	2.0V ± 0.1V
2. Detection Coil adjustment	L202 (IF PCB)	Input 1kHz, 3.5kHz/Dev. +66dB $\mu$ at 145.03MHz and adjust L202 so that detection power becomes maximum.	
3. VHF FRONT END adjustment	L306, L308, L309, TC305, L311, L312 (RF PCB)	At 145.95MHz and adjust L306, L308, L309, TC305, L311, and L312, so that 12dB SINAD sensitivity becomes maximum.	under -9dB $\mu$ (EMF)
4. S-meter adjustment	VR202 (IF PCB)	Input a signal of 10dB $\mu$ from transceiver tester at 145.95MHz Turn VR202 so that Full-bar begins to tight.	10dB $\mu$ ± 1dB $\mu$ (EMF)

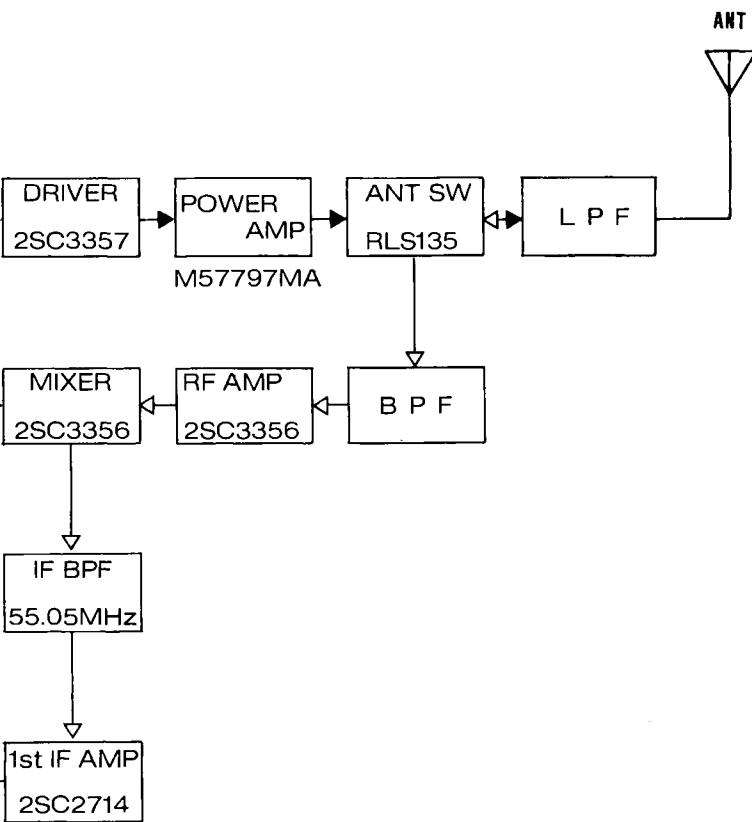
## ■ ADJUSTMENT



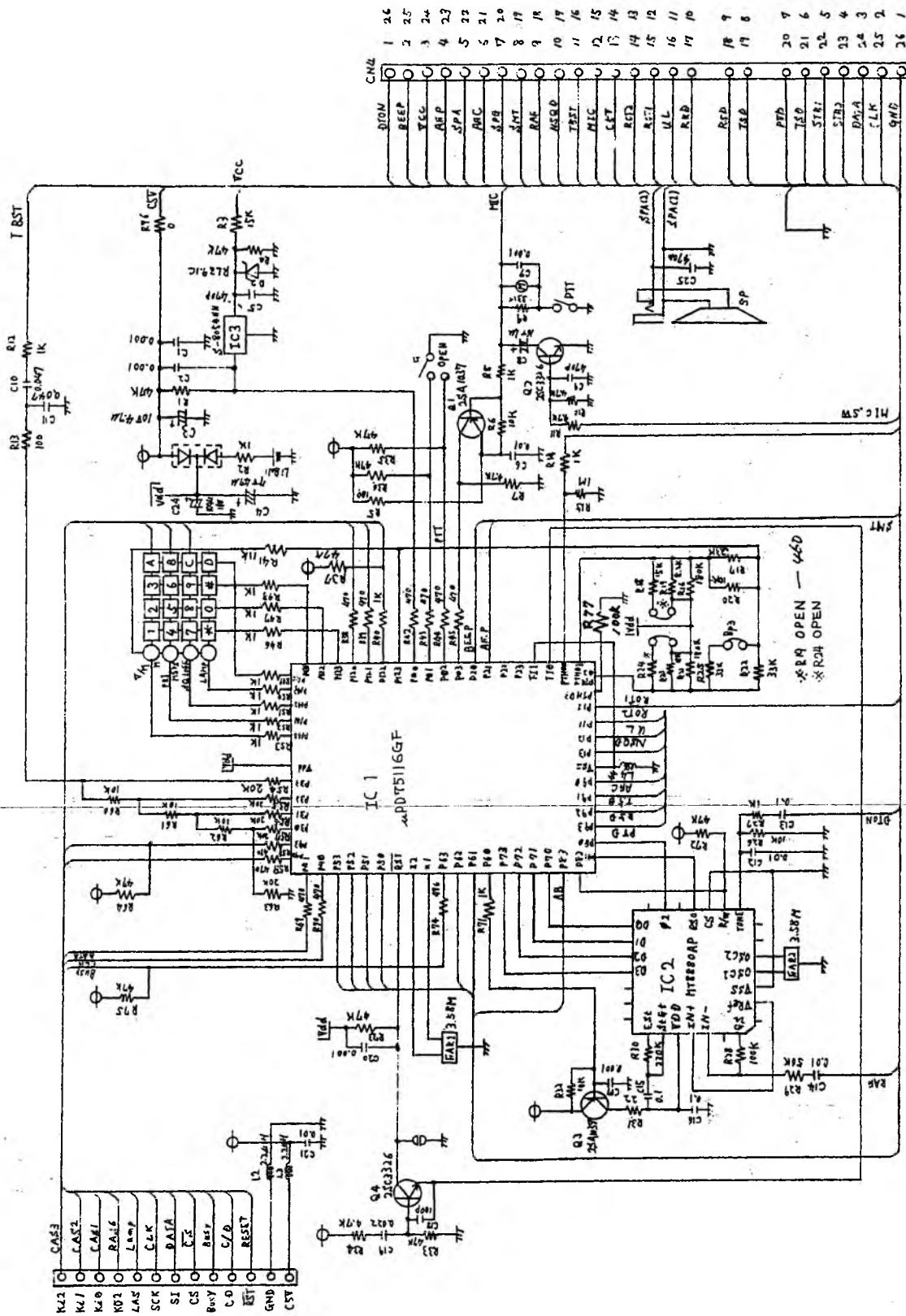


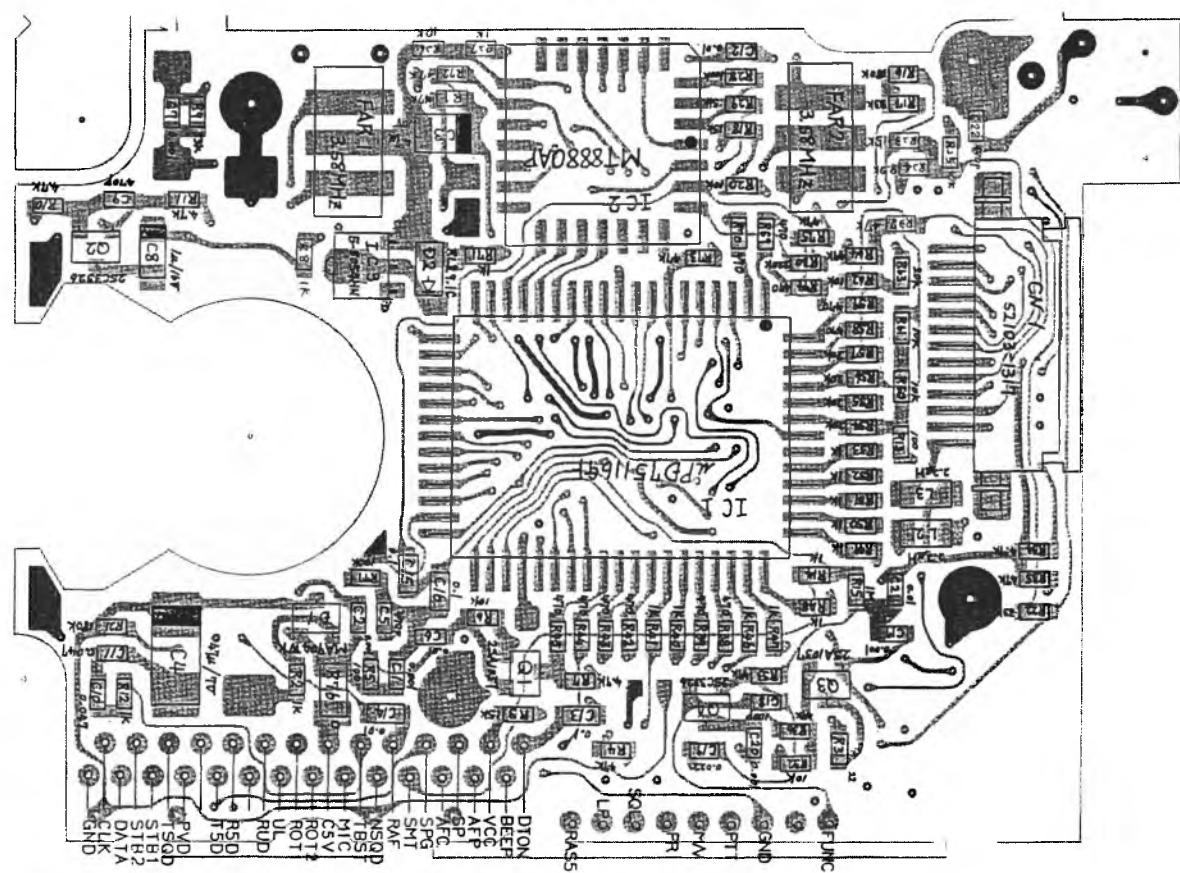
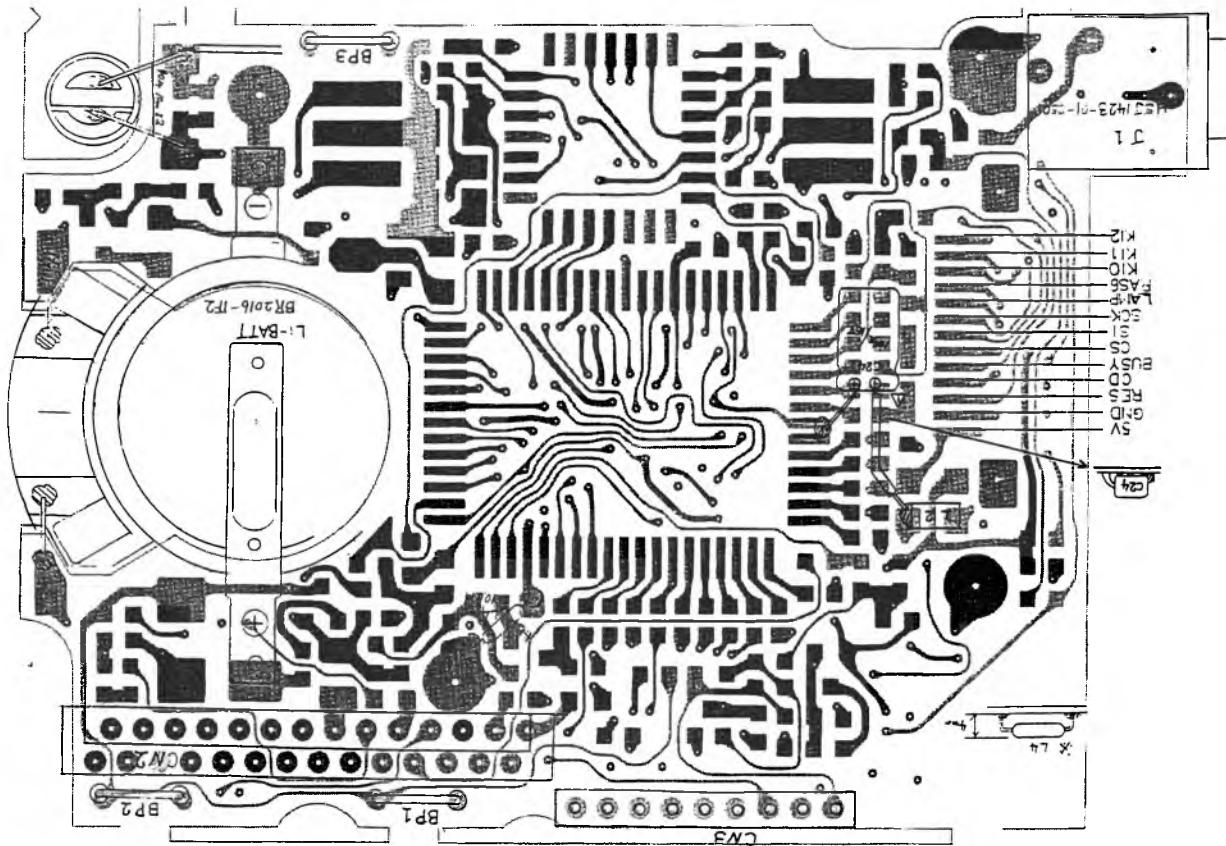
→ RECEIVE  
 → TRANSMIT  
 → COMMON

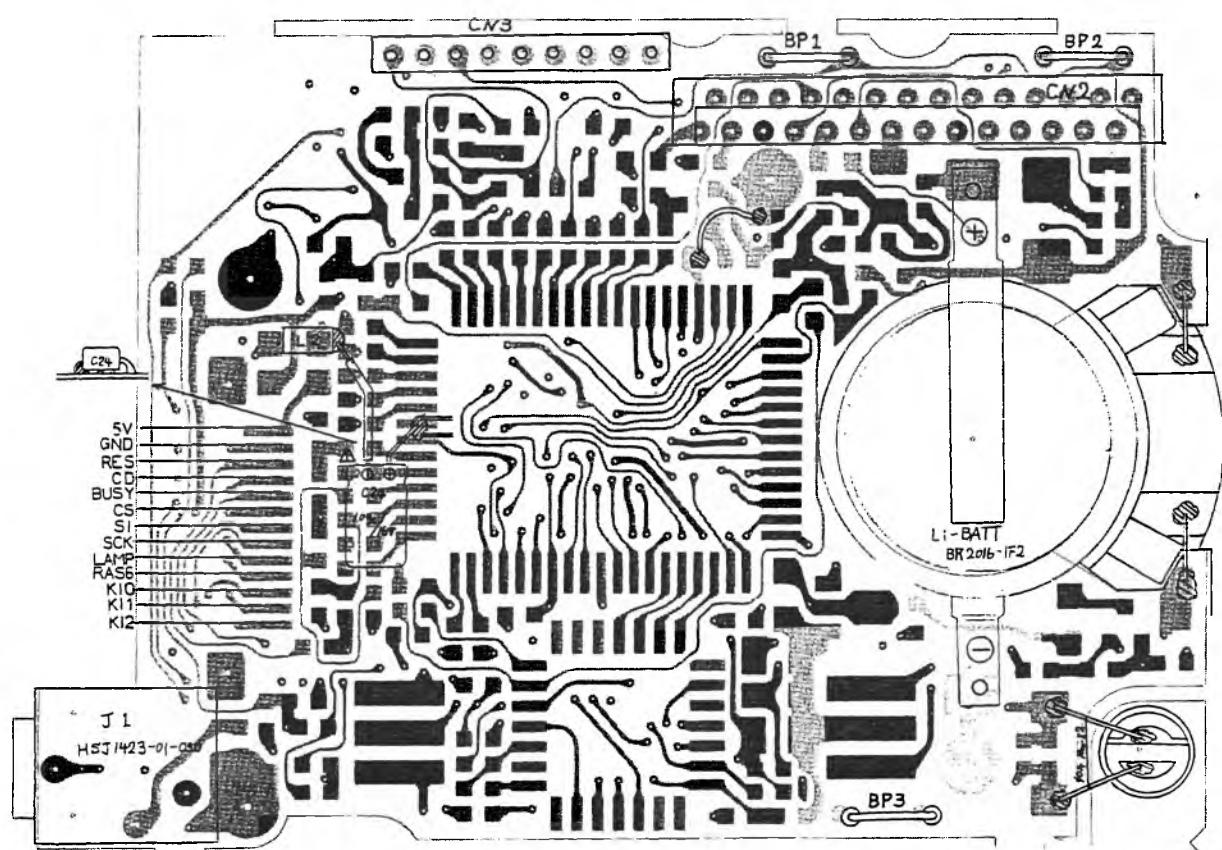
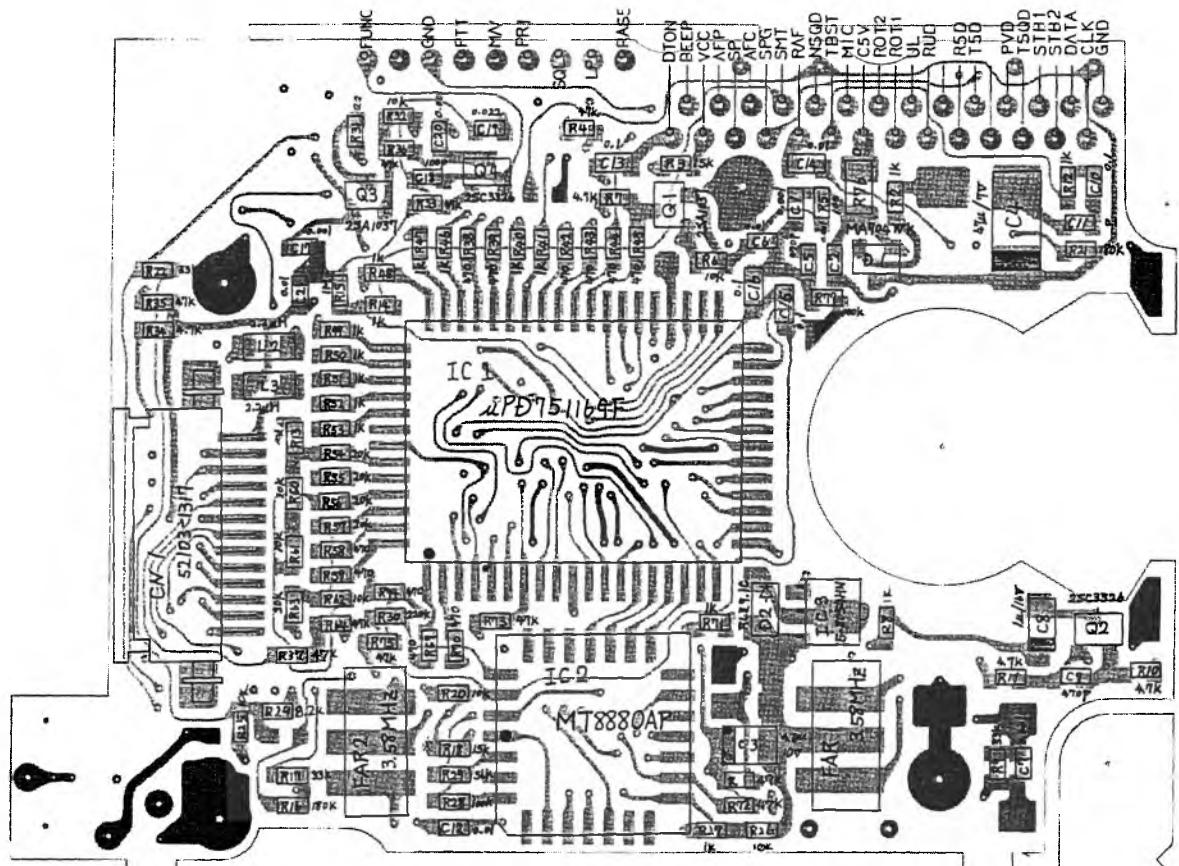
## ■ BLOCK DIAGRAM



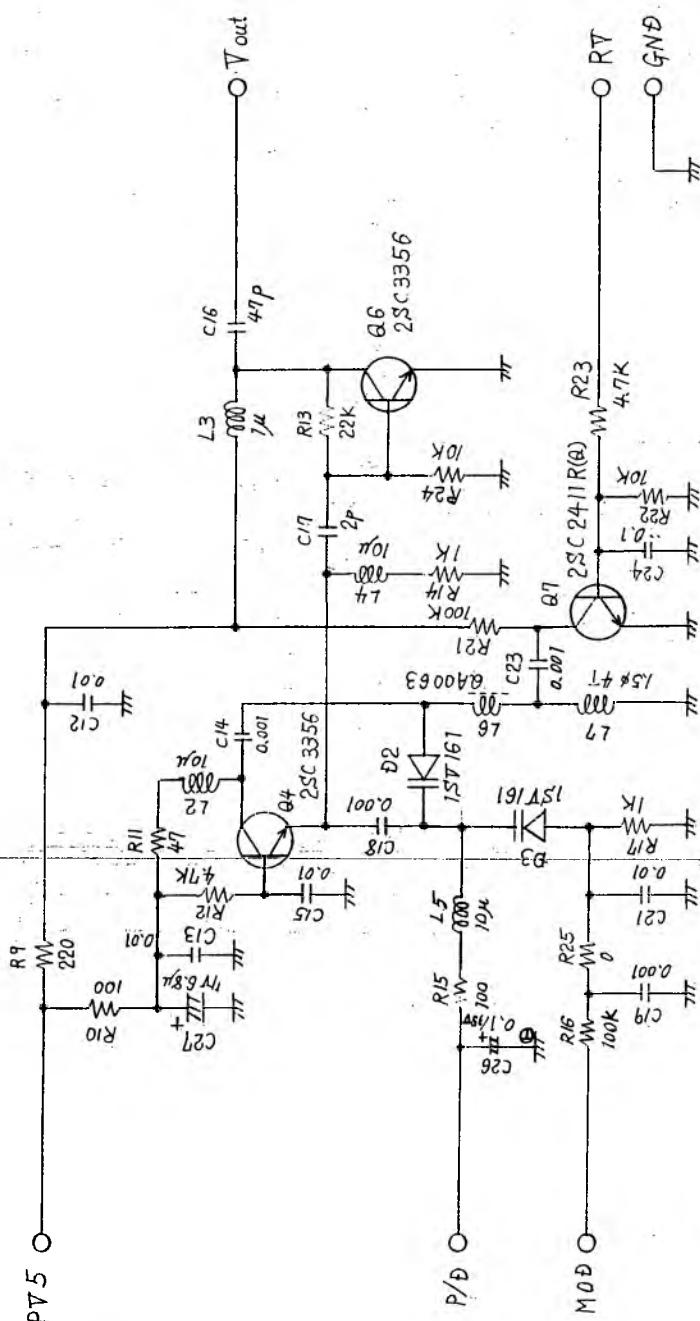
## ■ SCHEMATIC DIAGRAM OF CPU UNIT



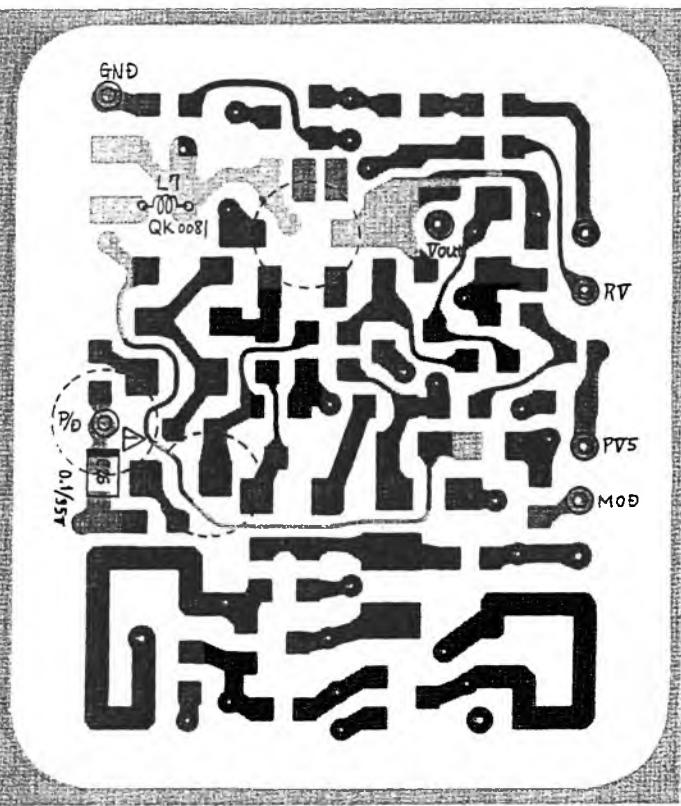
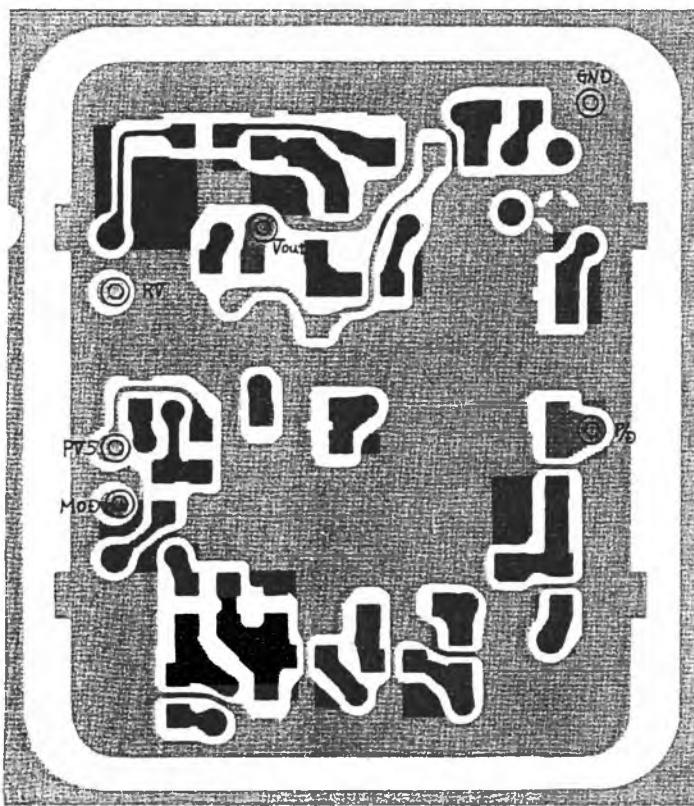
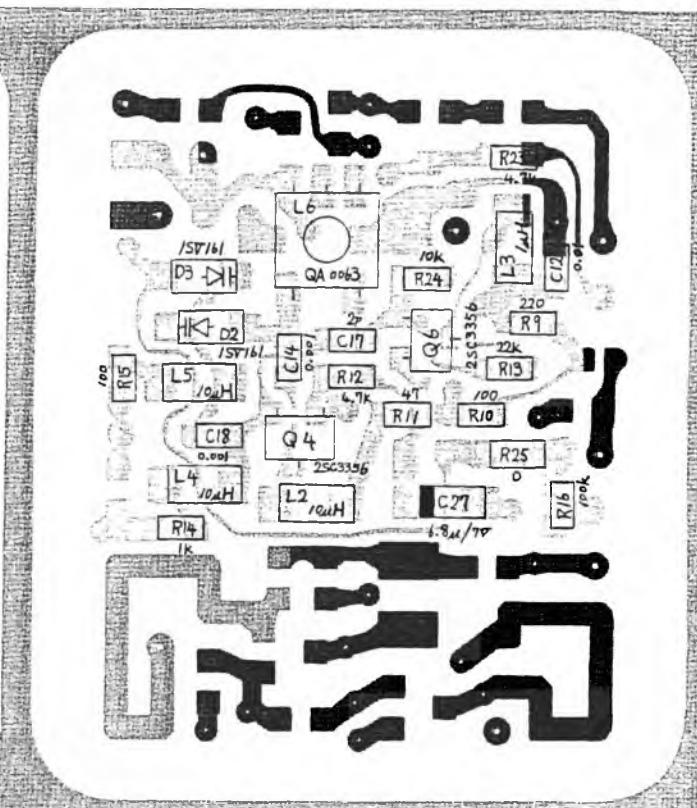
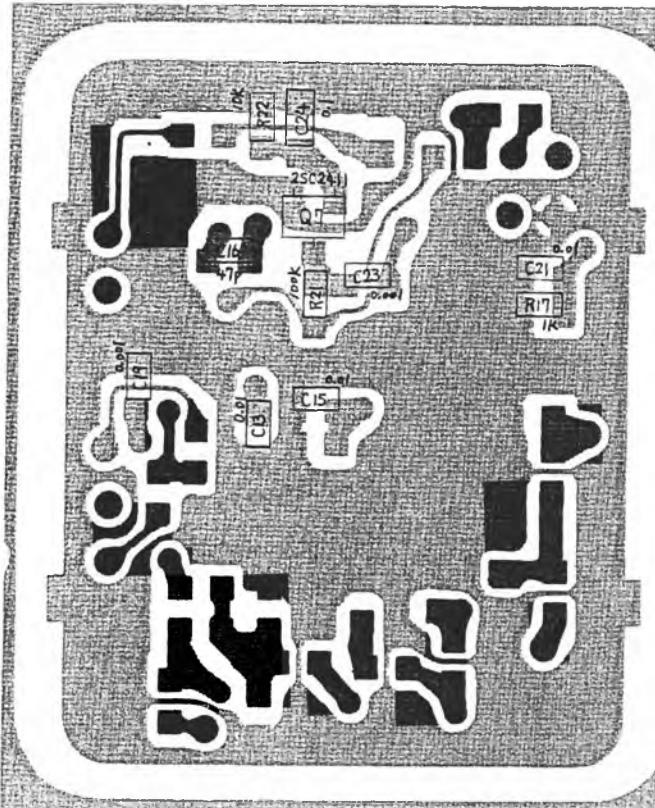




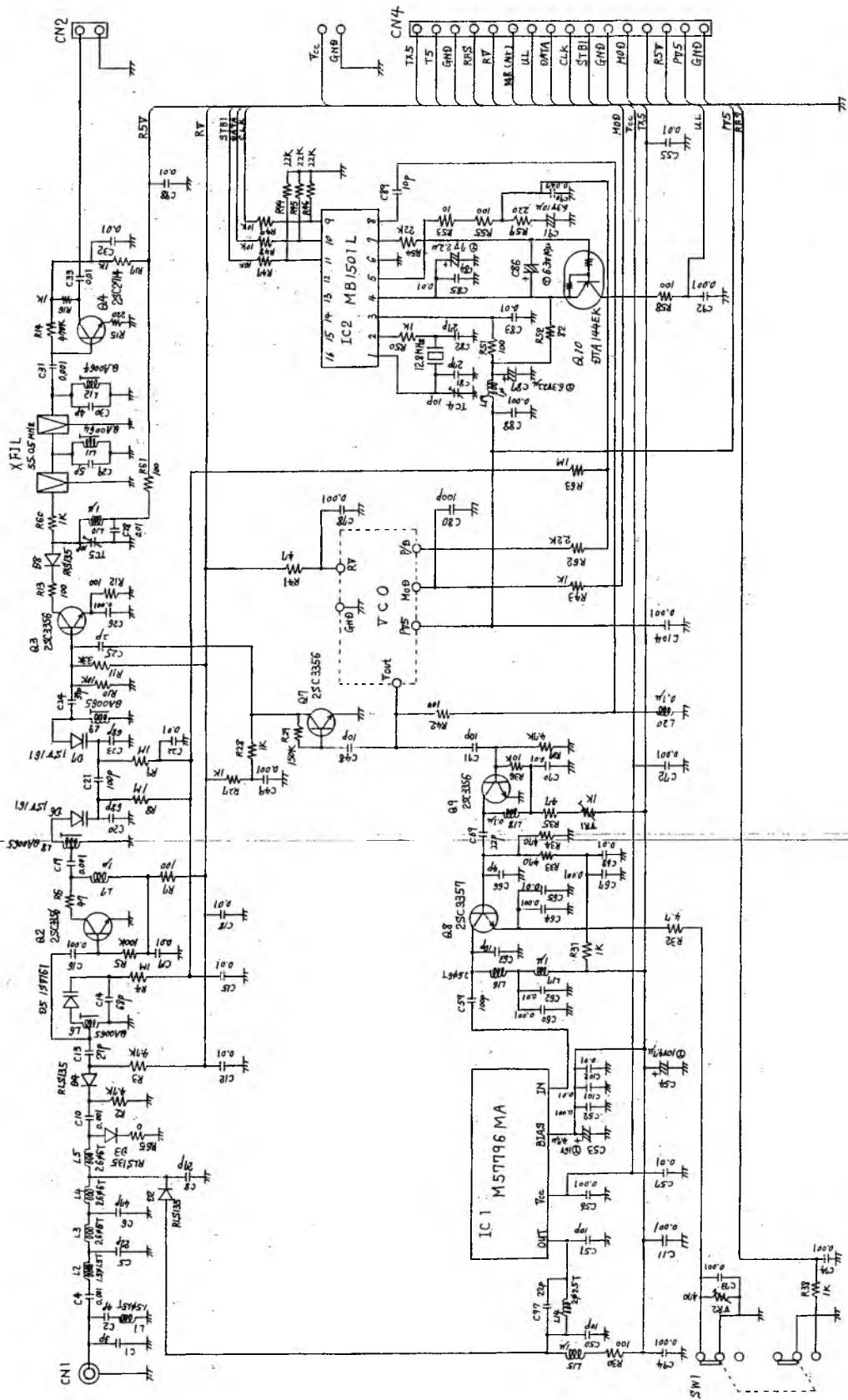
## ■ SCHEMATIC DIAGRAM OF VCO UNIT



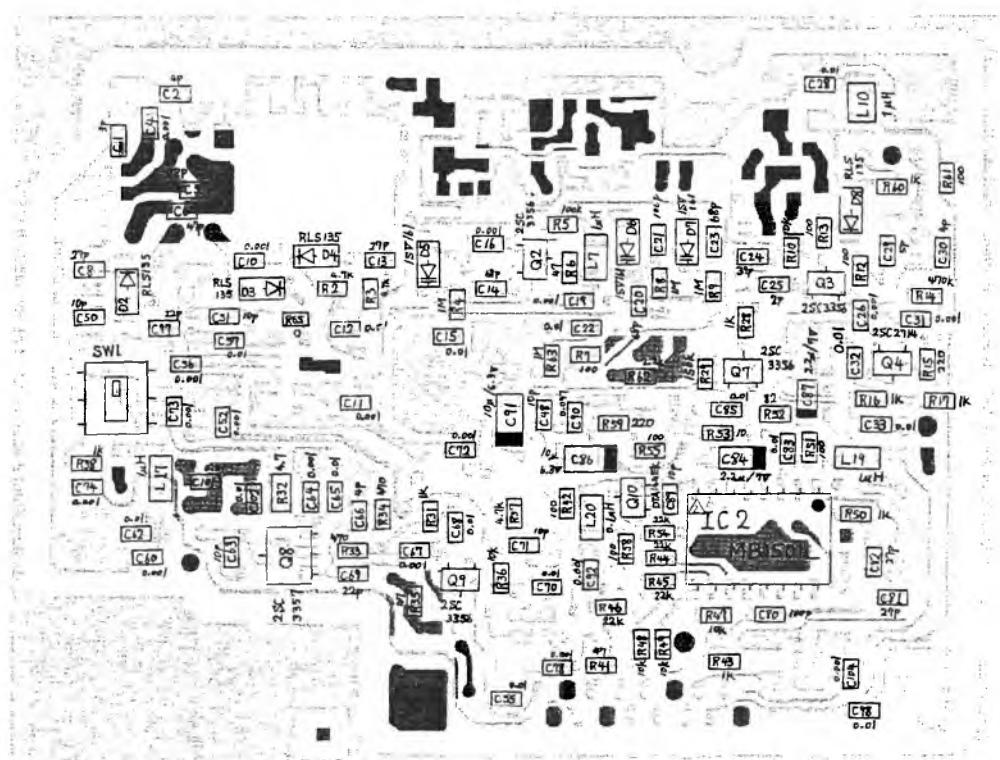
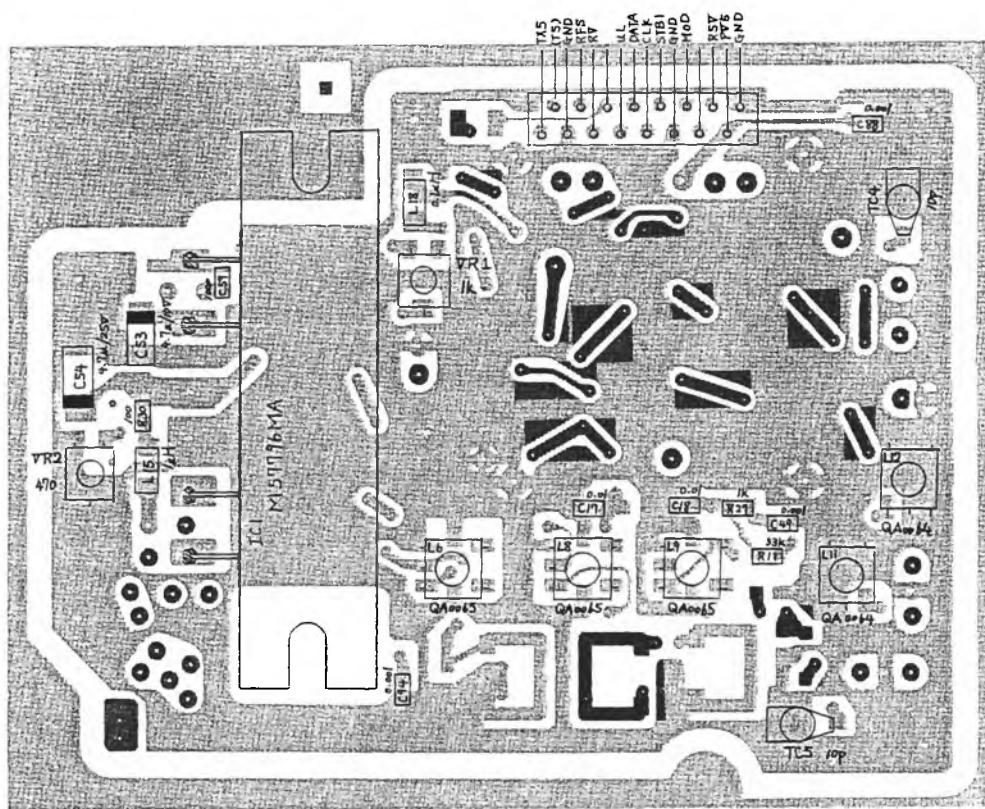
## ■ VCO PC BOARDS

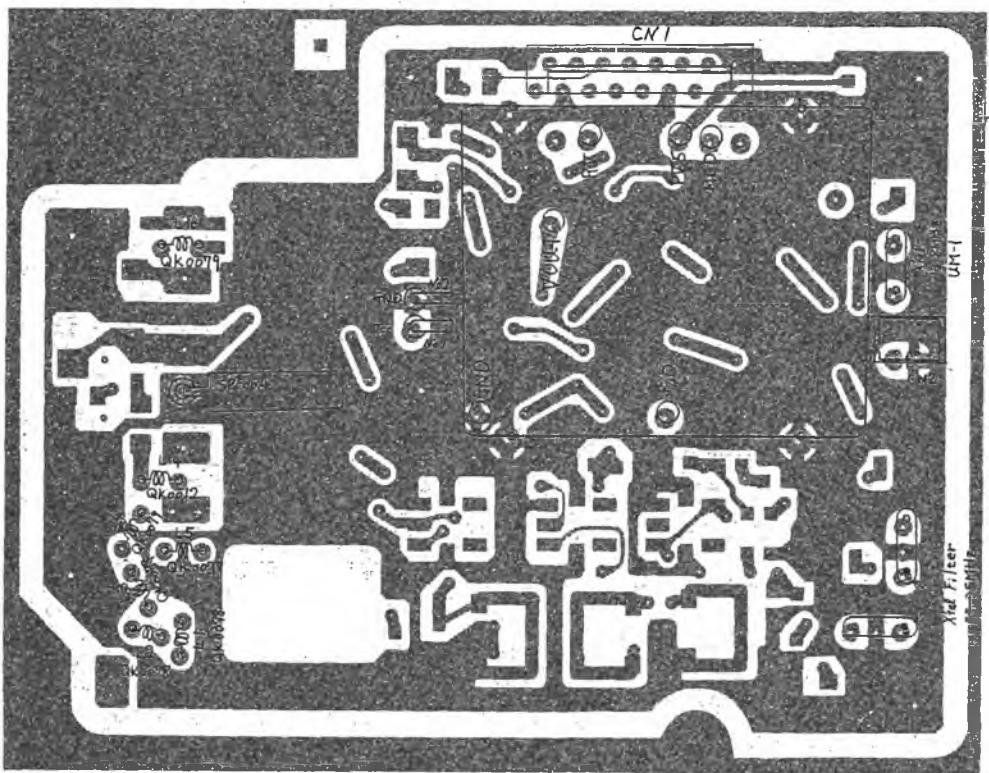


## ■ SCHEMATIC DIAGRAM OF RF UNIT

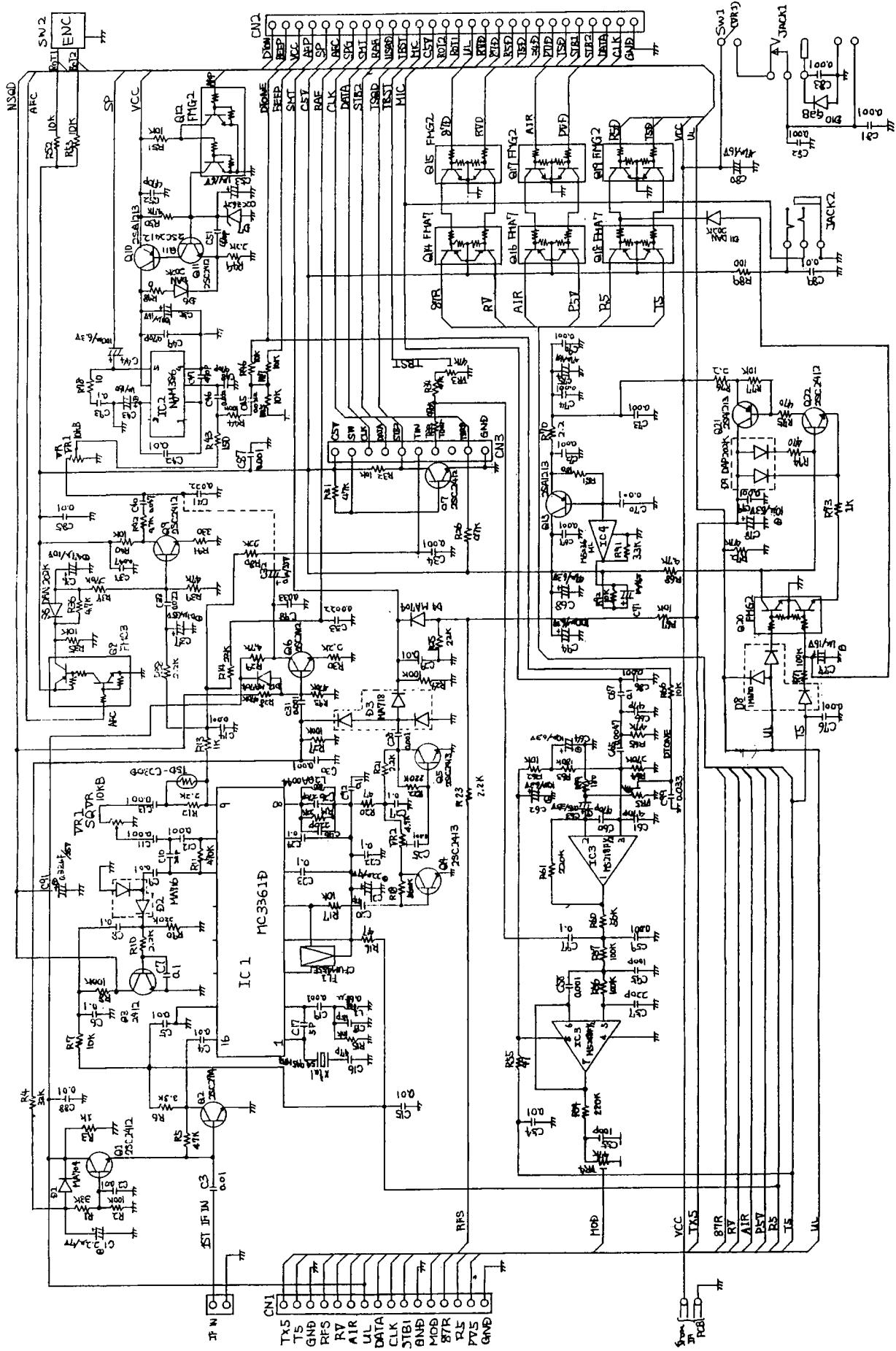


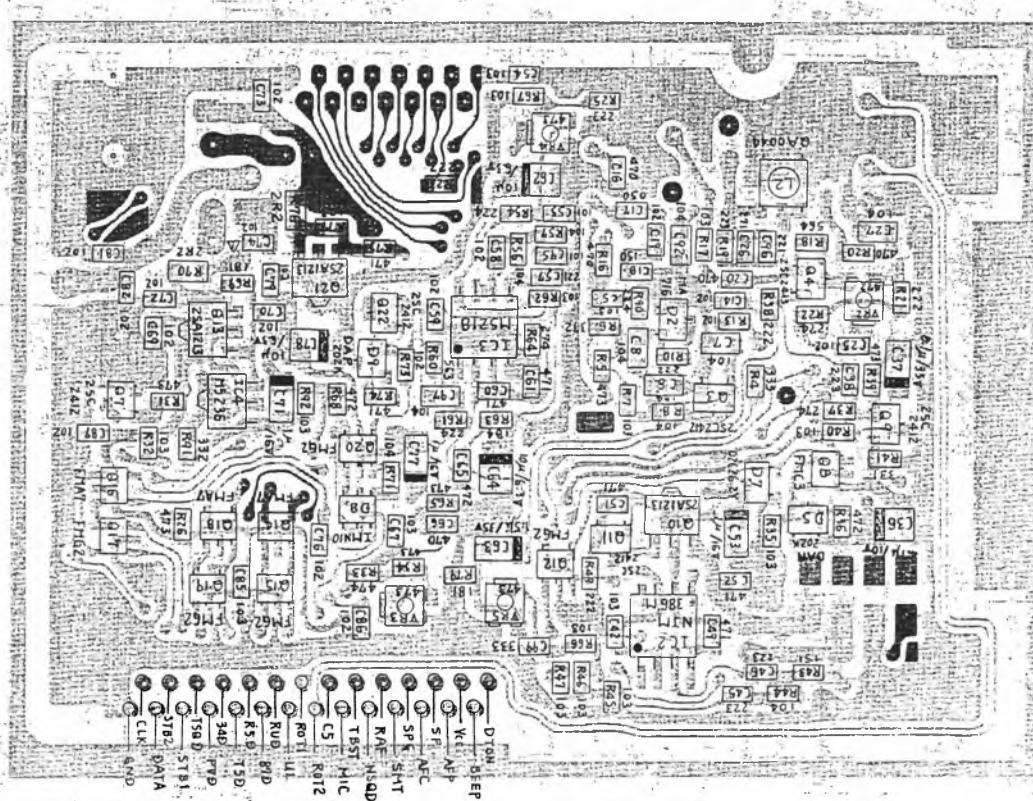
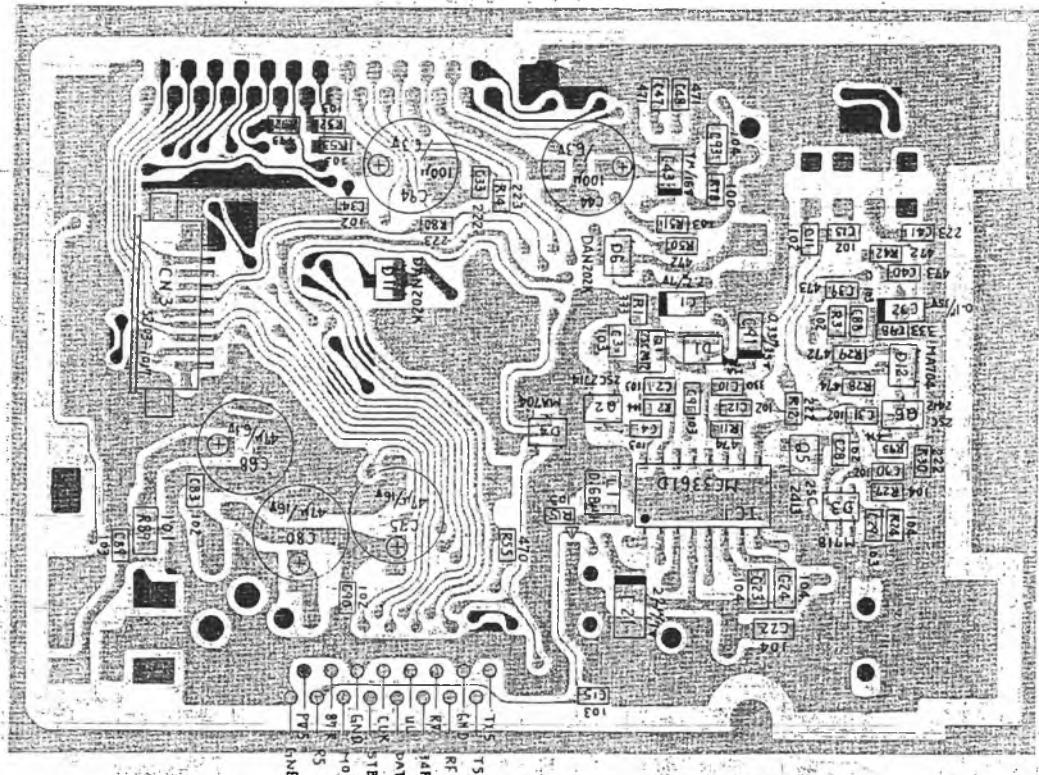
## ■ RF PC BOARDS



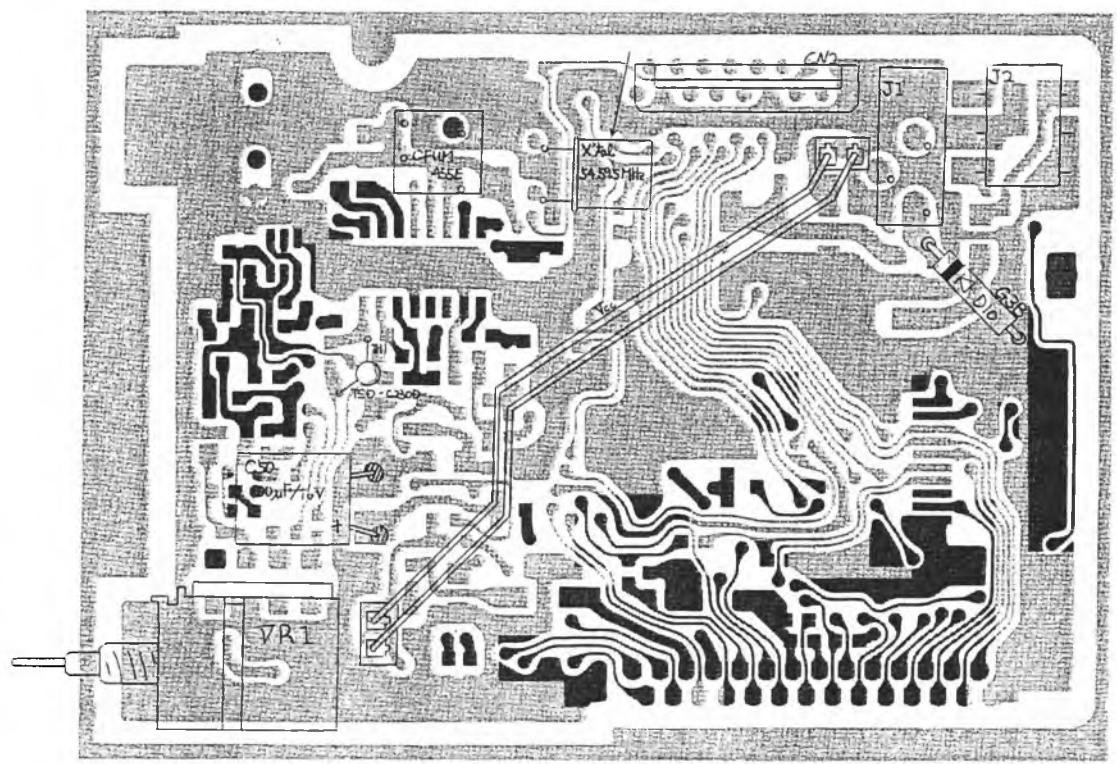
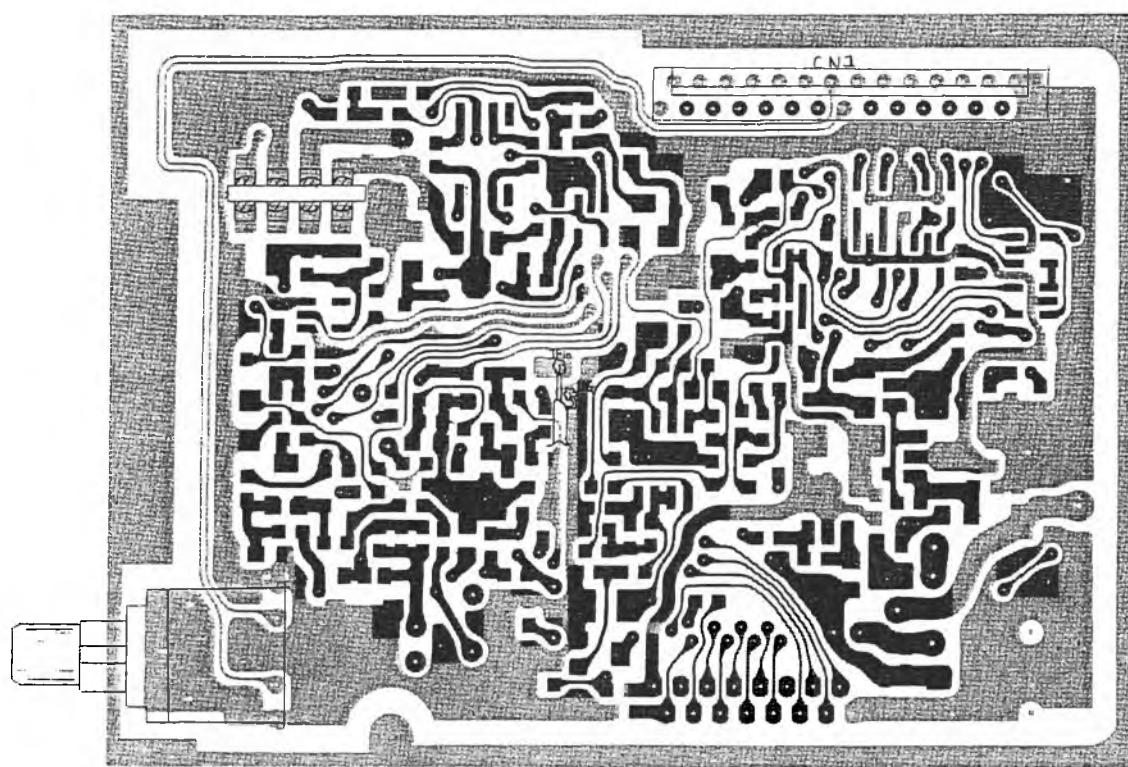


## ■ SCHEMATIC DIAGRAM OF IF UNIT





■ IF PC BOARDS



## **ALINCO ELECTRONICS INC.**

**Head Office :** "TWIN 21" MID Tower Building 23F  
1-61, 2-Chome, Shiromi, Higashi-ku, Osaka No. 540, Japan  
**Factory :** 1-1-1, Mishimae, Takatsuki, Osaka No. 569, Japan

Dealer/Distributor